It was a great pleasure to be at the World nutrition Congress, 2016 for many varied reasons; I have been working in the area of malnutrition for many years, and I could see from the programme that I would be amongst the few representing not just mal(under)nutrition, but also community-based action as an essential component of social change. I was also proud to be representing Peoples Health Movement (India), known as Jan Swasthya Abhiyan, and the Right to Food Movement, which has achieved so much and continues to struggle for better nutrition for all.

I rarely travel abroad, having consciously decided many years ago, to focus on national level work, but Africa is a special continent to me and it felt like a real treat to have the opportunity be there and meet many stalwarts of the global public health nutrition clan in one shot. And of course, I have a special warmth for SOPH, UWC, and look forward to any opportunity to stay closely in touch. I had visited once previously for the Peoples' Health Assembly and it always feels like coming home.

The Congress was extremely well organized, with typical large-heartedness, sensitivity and positive energy. The programme was crammed full of many excellent speakers and fairly comprehensive. I did feel, though, that it was heavily tilted towards policy analysis with too little consideration of the limitations of policy advocacy. While many consumer movements and successful consumer action were well represented in some workshops, the plenaries were dominated by an academic idiom. This is surely necessary, but could have been widened by bringing in the perspective of ‘struggle’ to provide a better understanding of pathways to change.
Perhaps there are not too many examples of movements on the double burden, but all of us do understand that they would be essential to counter the juggernaut of the processed food industry. There was also some evidence of the distance between academics and practitioners, since systemic issues of policy implementation got relatively little space though they were referred to during the policy analysis.

The other aspects that seemed to have been overlooked even more, was a gendered view of the double burden. If people are to eat better, eat fresh foods; if children are to be breastfeed exclusively for six months, if a one-year old is to be fed mashed, fresh food five times a day, both economics of purchase, and women’s time, energy and motivation as primary ‘feeders’ have to be taken into consideration, costed and supported. Thus, for instance, if exclusive breastfeeding is to become a reality, it cannot happen without universal maternity leave / entitlements, crèches on worksites etc. We understand the unpaid work of care all too well through our work with poor women, but this kind of nuance was not found in the analysis of the Congress. These may be ‘micro issues’ but they translate to macro policies and are needed to inform them. I used my time as speaker to bring this up before making my formal presentation.

In my limited time of twenty minutes, I focused on community-based management of malnutrition, itself a subject worthy of entire conventions, with the objective to counter the current dominant paradigm of the medical approach to malnutrition. (Even I could not do justice to taking it expressly further to community mobilization, organisation and movement-building for action.)

My session attempted to juxtapose a ‘true’ community-based process for managing acute malnutrition (CMAM), as against the thinly disguised medical approach that calls itself CMAM but is really, by a definition validated by UNICEF and WHO, a downward extension of a medical facility. I then took a few moments to show some possible strategies and elements through photographs, and provide some evidence of its efficacy. During the symposium that followed at SMU University, I had more time for my presentation and could expand on the key principles and essential elements of a community based approach. This worked well since many in the audience were practitioners.

I was heartened to find a very enthusiastic response to the presentation from a wide variety of Congress participants, ranging from ‘an ordinary grandmother’ who felt she too knew something about nutrition and that it should be acknowledged, to many practitioners who felt they had received some ideas on how to engage with rural communities on the issue of nutrition. Of most significance to me personally, was the response from Ann Robins, UNICEF Kenya, who received our critique of the current approach to CMAM seriously, and also followed up to find out more. If UNICEF is able to acknowledge the worth of our recommendations on CMAM, it could have great impact on Africa and elsewhere.

Lastly, it was wonderful to spend some time on the sidelines with David, Helen and Nikki and see a bit of beautiful Cape Town, albeit with a gnawing sense of the continuing disparities so evident in the city. I hope the kinship between some of us in India and SOPH continues to flourish, and Sulakshana and I are committed to keep trying to build the bridge to keep us connected. Hope to see you soon, SOPH!
Fighting to save a Forest: Struggles by indigenous communities in Chhattisgarh state of India against state-sponsored deforestation

Sulakshana Nandi (People’s Health Movement-India)

Forests are linked intrinsically to lives and sustenance of indigenous communities in India. Forest-based livelihoods and forest produce, such as wild mushrooms, leafy vegetables, fruits, nuts, edible oilseeds and tubers, are important sources of food security and nutrition for them. However, the state continues to impinge upon their rights over these natural resources, and encourages commercial exploitation of water and forests.

In 2006, in Chhattisgarh state, the state-owned Forest Development Corporation started felling nearly 40,000 hectares of dense natural forests involving around 20 million trees in three districts. They were going to replace part of the natural forests with teak that was an alien species in the area. In Koriya district, women from indigenous communities, led by Community Health Workers called Mitanins organized as Adivasi Adhikar Samiti (Organisation for Rights of Indigenous people), agitated against the felling. The Mitanins are part of a statewide Community Health Worker (CHW) programme that was initiated in Chhattisgarh state in 2002. More than 65,000 female CHWs or Mitanins have been selected and trained. Lessons from the Mitanin programme went into designing the countrywide ASHA Community Health Worker programme under the National Rural Health Mission in 2005.

The Mitanin programme conceptualised a broader definition of health to include the social, economic, political and cultural determinants of health and the Mitanins trained & supported accordingly.

The Mitanins challenged the state action despite threats. They mobilized village assemblies, monitored and resisted tree-felling activities and made representations to government. Simultaneously, they filed a case in the High Court that they won and the Forest Corporation had to disband its project.

In 2013, the threat to forests and food security once again emerged in the form of a Coal-Bed-Methane extraction project. The women feared that the extraction would deplete their ground water resources, pollute drinking water and adversely affect the natural forests and the eco-system. Using similar strategies as before they effectively stalled the project for 3 years.

The struggles illustrate that Community Health Workers can act on the social determinants of health (SDoH), right to food, health and life. However, necessary and adequate support should be provided to CHWs to empower them & facilitate such action.

The struggles also show the centrality of forests in food-systems of indigenous people. Forests are seen by governments as sources of revenue to be exploited as opposed to community resources essential for survival. The social and ecological significance of forests are deemed subordinate to commercial gain. Considering the significance of forests on nutrition and survival of indigenous communities, it is critical that these communities are have greater say and control over these natural resources and forests are not commercialised.
Out of nearly 50,000 applicants, I was selected to be a 2016 Mandela Washington Fellow, one of 60 representing South Africa out of a total of 1000 fellows. Begun in 2014, this is the flagship program of President Obama’s Young African Leaders Initiative (YALI) that empowers young people through academic coursework, leadership training, and networking. The Fellows, who are between the ages of 25 and 35, have established records of accomplishment in promoting innovation and positive change in their organizations, institutions, communities, and countries.

I was selected based on my work as a rape survivor and a rape activist. I have used my story to advocate for rape services for rape survivors. I have been recognised for my work with a white ribbon on 25 November 2006 by Women Demand Dignity. I was selected as part of Mail and Guardian Top 300 and “200 Young People You Should Take to Lunch”, under the civil society category.

On 16th of June 2016, I travelled to the United States for a 6 weeks academic coursework programme on leadership. I was placed at Rutgers University under the Civic Leadership Institute with 24 other fellows representing 19 African Countries. Rutgers, The State University of New Jersey, is a leading national research university and the state of New Jersey’s preeminent, comprehensive public institution of higher education.

The academic coursework at Rutgers was separated into the following themes:

- Democracy/ Governance/ Civic Education
- Public Advocacy and Research
- Collaborating with Global Civic Organizations
- Role of Civil Society Organizations related to challenges of Women and Girls
- Role of Civic Society Organizations in Public Health and Medicine
- Youth and Leadership; team building and conflict resolution.

One day each week, we participated in Professional Development Mentorships and we were assigned to seasoned experts in civic, non-profit, and the NGO sectors. I was placed in a rape crisis organization called Women Organizing against Rape (WOAR). I had the opportunity to
Strengthening International Collaboration

During this year we strengthened our international collaboration with a large number of colleagues around the world.

Prof Diane Cooper visited colleagues at the School of Public Health at the University of Zambia in Lusaka in May and at the University of Botswana in September, to discuss teaching and research collaboration. She was also a guest facilitator of a workshop on qualitative methods of research with the University of Botswana.

Prof Cooper visited the International Centre for Reproductive Health (ICRH) at the University of Gent in Belgium in June, as part of bilateral research collaboration between UWC and Gent U. We have submitted joint proposals for funding to conduct research on the impact of gender norms on the sexual and reproductive health of a cohort of early adolescents in South Africa and Belgium.

In July, the SoPH conducted a workshop in collaboration with and funded by the Women’s Health Research Unit at the University of Cape Town. The workshop was planned to coincide with and be held in parallel to the International AIDS conference 2016 in Durban. This enabled us to involve delegates who were attending the conference. The workshop was titled: “Sexual Reproductive Health, Rights and Needs of Adolescent and Young-Adult Women at Risk of and Living with HIV: Examples, discussion and developing approaches from the Global South”. Prof Cooper and several other participants gave presentations at the workshop. Dr Manala Makua, Director, Women’s Health and Genetics, South African National Department of Health attended and provided insights. Workshop discussions involved Dr Lucia Knight from UWC’s SoPH and participants from institutions in South Africa, Zambia, Brazil the U.S and several other countries. Over 100 scholars, advocates and activists from around the world expressed interest in the workshop, although not all were able to attend. Dr We plan to keep the discussion on this area of work going across countries and continents electronically and through further meetings.
Dean of UWC’s Faculty of Community and Health Sciences gets NRF Award

I am pleased to inform you about the National Research Foundation (NRF) Award that was bestowed on Professor José Frantz (left), Dean of the Faculty of Community and Health Sciences on 1 September 2016. Prof Frantz was named the Champion of Research Capacity Development and Transformation at South African Higher Education Institutions.

This NRF award is in recognition of her significant research contribution and the impact of her work in community and health sciences. The award further recognises her contribution to the development of new generation of researchers, the number of students from designated groups trained by Prof Frantz, as well as the quality and impact of research outputs of her students.

The award was presented by the Minister of the Department of Science and Technology, Mrs Naledi Pandor, on Thursday 1 September 2016 in Polokwane.

Mariam Hassen joins SOPH

I’m here due to persistence as I am a biokineticist from the private sector trying to break the mould – I’m from ‘the dark side’ according to a Public Health practitioner.

Although an advocate and practitioner in physical activity (by virtue of the scope of my practice as a biokineticist) my interest in health care is holistic and functional, so food and nutrition together with contributors to lifestyle formulates my desire to engage on a more global level.

Diabetes management and prevention is of particular interest on a personal as well as a public level as most of the above informs and plays the major role in the etiology.

I like to think I ‘walk the talk’. Although it does not come naturally to me I am sincere about my own longevity and health, but I have a strong desire to help others through public engagement and social innovation. I am currently assisting with the Diabetes Prevention Programme and potentially the SMART2D Project.
I’m keeping fingers crossed to be accepted into the Masters academic programme for 2017.

My experience of the School of Public Health thus far has been positive with a great combination of Seniors, Mentors, PhD students, Postdocs (many fellow Zimbabweans) and a fabulous administrative team. I’ve settled in quickly and look forward to the months and maybe years of engagement.

Thank you for the opportunity.
Mariam Hassan

Population–level effectiveness of PMTCT Option A on early mother–to–child (MTCT) transmission of HIV in South Africa: implications for eliminating MTCT


**Background**
Eliminating mother–to–child transmission of HIV (EMTCT), defined as ≤50 infant HIV infections per 100 000 live births, is a global priority. Since 2011 policies to prevent mother–to–child transmission of HIV (PMTCT) shifted from maternal antiretroviral (ARV) treatment or prophylaxis contingent on CD4 cell count to lifelong maternal ARV treatment (cART). We sought to measure progress with early (4–8 weeks postpartum) MTCT prevention and elimination, 2011–2013, at national and sub–national levels in South Africa, a high antenatal HIV prevalence setting (≈ 29%), where early MTCT was 3.5% in 2010.

**Methods**
Two surveys were conducted (August 2011–March 2012 and October 2012–May 2013), in 580 health facilities, randomly selected after two–stage probability proportional to size sampling of facilities (the primary sampling unit), to provide valid national and sub–national–(provincial)–level estimates. Data collectors interviewed caregivers of eligible infants, reviewed patient–held charts, and collected infant dried blood spots (iDBS). Confirmed positive HIV enzyme immunoassay (EIA) and positive total HIV nucleic acid polymerase chain reaction (PCR) indicated infant HIV exposure or infection, respectively. Weighted survey analysis was conducted for each survey and for the pooled data.

**Findings**
National data from 10 106 and 9120 participants were analysed (2011–12 and 2012–13 surveys respectively). Infant HIV exposure was 32.2% (95% confidence interval (CI) 30.7–33.6%), in 2011–12 and 33.1% (95% CI 31.8–34.4%), provincial range of 22.1–43.6% in 2012–13. MTCT was 2.7% (95% CI 2.1%–3.2%) in 2011–12 and 2.6% (95% CI 2.0 –3.2%), provincial range of 1.9–5.4% in 2012–13. HIV–infected ARV–exposed mothers had significantly lower unadjusted early MTCT (2.0% [2011–12: 1.6 –2.5%; 2012–13:1.5–2.6%]) compared to HIV–infected ARV–naive mothers [10.2% in 2011–12 (6.5–13.8%); 9.2% in 2012–13 (5.6–12.7%)]. Pooled analyses demonstrated significantly lower early MTCT among exclusive breastfeeding (EBF) mothers receiving >10 weeks ARV prophylaxis or cART compared with EBF and no ARVs: (2.2% [95% CI 1.25–3.09%] vs 12.2% [95% CI 4.7–19.6%], respectively); among HIV–infected ARV–exposed mothers, 24.9% (95% CI 23.5–26.3%) initiated cART during or before the first trimester, and their early MTCT was 1.2% (95% CI 0.6–1.7%). Extrapolating these data, assuming 32% EIA positivity and 2.6% or 1.2% MTCT, 384 infants per 100 000 live births were HIV infected, respectively.

**Conclusions:**
Although we demonstrate sustained national–level PMTCT impact in a high HIV prevalence setting, results are far–removed from EMTCT targets. Reducing maternal HIV prevalence and treating all maternal HIV infection early are critical for further progress.

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Reduction in child mortality in Ethiopia: analysis of data from demographic and health surveys

Tanya Doherty, Sarah Rohde, Donela Besada, Kate Kerber, Samuel Manda, Marian Loveday, Duduzile Nsibande, Emmanuelle Daviaud, Mary Kinney, Wanga Zembe, Natalie Leon, Igor Rudan, Tedbabe Degefie, David Sanders

Background
To examine changes in under-5 mortality, coverage of child survival interventions and nutritional status of children in Ethiopia between 2000 and 2011. Using the Lives Saved Tool, the impact of changes in coverage of child survival interventions on under-5 lives saved was estimated.

Methods
Estimates of child mortality were generated using three Ethiopia Demographic and Health Surveys undertaken between 2000 and 2011. Coverage indicators for high impact child health interventions were calculated and the Lives Saved Tool (LiST) was used to estimate child lives saved in 2011.

Results
The mortality rate in children younger than 5 years decreased rapidly from 218 child deaths per 1000 live births (95% confidence interval 183 to 252) in the period 1987–1991 to 88 child deaths per 1000 live births in the period 2007–2011 (78 to 98). The prevalence of moderate or severe stunting in children aged 6–35 months also declined significantly. Improvements in the coverage of interventions relevant to child survival in rural areas of Ethiopia between 2000 and 2011 were found for tetanus toxoid, DPT3 and measles vaccination, oral rehydration solution (ORS) and care-seeking for suspected pneumonia. The LiST analysis estimates that there were 60 700 child deaths averted in 2011, primarily attributable to decreases in wasting rates (18%), stunting rates (13%) and water, sanitation and hygiene (WASH) interventions (13%).

Conclusions
Improvements in the nutritional status of children and increases in coverage of high impact interventions most notably WASH and ORS have contributed to the decline in under-5 mortality in Ethiopia. These proximal determinants however do not fully explain the mortality reduction which is plausibly also due to the synergistic effect of major child health and nutrition policies and delivery strategies.

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Perceptions of body size, obesity threat and the willingness to lose weight among black South African adults: a qualitative study

Kufre Joseph Okop, Ferdinand C. Mukumbang, Thubelihle Mathole, Naomi Levitt and Thandi Puoane

Abstract
Background:
The obesity epidemic is associated with rising rates of cardiovascular disease (CVD) among adults, particularly in countries undergoing rapid urbanisation and nutrition transition. This study explored the perceptions of body size, obesity risk awareness, and the willingness to lose weight among adults in a resource-limited urban community to inform appropriate community-based interventions for the prevention of obesity.
Method:
This is a descriptive qualitative study. Semi-structured focus group discussions were conducted with purposely selected black men and women aged 35–70 years living in an urban South African township. Weight and height measurements were taken, and the participants were classified into optimal weight, overweight and obese groups based on their body mass index (Kg/m²). Participants were asked to discuss on perceived obesity threat and risk of cardiovascular disease. Information on body image perceptions and the willingness to lose excess body weight were also discussed. Discussions were conducted in the local language (isiXhosa), transcribed and translated into English. Data was analysed using the thematic analysis approach.

Results:
Participants generally believed that obesity could lead to health conditions such as heart attack, stroke, diabetes, and hypertension. However, severity of obesity was perceived differently in the groups. Men in all groups and women in the obese and optimal weight groups perceived obesity to be a serious threat to their health, whereas the overweight women did not. Obese participants who had experienced chronic disease conditions indicated strong perceptions of risk of obesity and cardiovascular disease. Obese participants, particularly men, expressed willingness to lose weight, compared to the men and women who were overweight. The belief that overweight is 'normal' and not a disease, subjective norms, and inaccessibility to physical activity facilities, negatively influenced participants’ readiness to lose weight.

Conclusion:
Low perception of threat of obesity to health particularly among overweight women in this community indicates a considerable challenge to obesity control. Community health education and promotion programmes that increase awareness about the risk associated with overweight, and improve the motivation for physical activity and maintenance of optimal body weight are needed.

Factors Associated with Excessive Body Fat in Men and Women: Cross-Sectional Data from Black South Africans Living in a Rural Community and an Urban Township

Kufre Joseph Okop, Naomi Levitt, Thandi Puoane

Abstract
Objective
To determine the factors associated with excessive body fat among black African men and women living in rural and urban communities of South Africa.

Methods
This is a cross-sectional analysis of data from the Prospective Urban and Rural Epidemiology (PURE) study, Cape Town, South Africa conducted in 2009/2010. The study sample included 1220 participants (77.2% women) aged 35–70 years, for whom anthropometric measurements were obtained and risk factors documented through face-to-face interviews using validated international PURE study protocols. Sex-specific logistic regression models were used to evaluate socio-demographic, lifestyle and psychological factors associated with three excessive body fat indicators, namely body mass index (BMI), waist circumference (WC) and body fat percent (BF%).

Results
The prevalence of excessive body fat based on BF%, WC and BMI cut-offs were 96.0%, 86.1%, and 81.6% for women respectively, and 62.2%, 25.9%, and 36.0% for men respectively. The significant odds of excessive body fat among the currently married compared to unmarried were 4.1 (95% CI: 1.3–12.5) for BF% and 1.9 (95% CI: 1.3–2.9) for BMI among women; and 4.9 (95% CI: 2.6–9.6), 3.2 (95% CI: 1.6–6.4) and 3.6 (95% CI: 1.9–6.8) for BF%, WC and BMI respectively among men. Age >50 years (compared to age >50
years) was inversely associated with excessive BF% in men and women, and less-than-a-college education was inversely associated with excessive BMI and WC in men. Tobacco smoking was inversely associated with all three excessive adiposity indicators in women but not in men. Unemployment, depression, and stress did not predict excessive body fat in men or women.

**Conclusion**
The sex-differences in the socio-demographic and lifestyle factors associated with the high levels of excessive body fat in urban and rural women and men should be considered in packaging interventions to reduce obesity in these communities.

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**A mobile school-based HCT service – is it youth friendly?**

*Estelle Lawrence, Patricia Struthers and Geert Van Hove*

**Abstract**

**Background:** Despite an increase in HIV Counselling and Testing (HCT), few young people have been tested. It has been suggested that they do not test because formal health services (where HCT is provided) are often not youth friendly. The World Health Organisation describes a youth-friendly health service (YFHS) as one which is accessible, equitable, acceptable, appropriate, and effective. A mobile school-based model has been implemented by a non-governmental organisation in Cape Town in an attempt to make HCT more youth friendly and accessible to young people. The objective of this study was to explore whether this mobile school-based HCT service is youth friendly.

**Methods:**
The study was descriptive, using three qualitative data collection methods: observation of the HCT site at two secondary schools; interviews with six service providers; and direct observation of 21 HCT counselling sessions.

**Key Results:**
The mobile school-based HCT service fulfilled some of the criteria for being a YFHS. The service was equitable in that all students, irrespective of race, gender, age, or socio-economic status, were free to use the service. It was accessible in terms of location and cost, but students were not well informed to make decisions about using the service. The service was acceptable in that confidentiality was guaranteed and the service providers were friendly and non-judgemental, but it was not considered acceptable in that there was limited privacy. The service was appropriate in that HCT is recommended as an intervention for decreasing the transmission of HIV, based on evidence and expert opinion; however, in this case, HCT was provided as a stand-alone service rather than part of a full package of services. Moreover, studies have suggested that young people want to know their HIV status. The service was ineffective in that it identified students who are HIV positive; however, these students were not assisted to access care.

**Conclusion:**
Providing HCT in the school setting may make HCT more accessible for students, but it needs to be provided in an equitable, accessible, acceptable, and effective way.
Towards Developing an Initial Programme Theory: Programme Designers and Managers. Assumptions on the Antiretroviral Treatment Adherence Club Programme in Primary Health Care Facilities in the Metropolitan Area of Western Cape Province, South Africa

Ferdinand C. Mukumbang, Sara van Belle, Bruno Marchal, Brian van Wyk

Abstract

Background
The antiretroviral adherence club intervention was rolled out in primary health care facilities in the Western Cape province of South Africa to relieve clinic congestion, and improve retention in care, and treatment adherence in the face of growing patient loads. We adopted the realist evaluation approach to evaluate what aspects of antiretroviral club intervention works, for what sections of the patient population, and under which community and health systems contexts, to inform guidelines for scaling up of the intervention. In this article, we report on a step towards the development of a programme theory—the assumptions of programme designers and health service managers with regard to how and why the adherence club intervention is expected to achieve its goals and perceptions on how it has done so (or not).

Methods
We adopted an exploratory qualitative research design. We conducted a document review of 12 documents on the design and implementation of the adherence club intervention, and key informant interviews with 12 purposively selected programme designers and managers. Thematic content analysis was used to identify themes attributed to the programme actors, context, mechanisms, and outcomes. Using the context-mechanism-outcome configurational tool, we provided an explanatory focus of how the adherence club intervention is roll-out and works guided by the realist perspective.

Results
We classified the assumptions of the adherence club designers and managers into the rollout, implementation, and utilisation of the adherence club programme, constructed around the providers, management/operational staff, and patients, respectively. Two rival theories were identified at the patient-perspective level. We used these perspectives to develop an initial programme theory of the adherence club intervention, which will be tested in a later phase.

Conclusion
The perspectives of the programme designers and managers provided an important step towards developing an initial programme theory, which will guide our realist evaluation of the adherence club programme in South Africa.
Availability, affordability, and consumption of fruits and vegetables in 18 countries across income levels: findings from the Prospective Urban Rural Epidemiology (PURE) study

Victoria Miller, Salim Yusuf, Clara K Chow, Mahshid Dehghan, Daniel J Corsi, Karen Lock, Barry Popkin, Sumathy Rangarajan, Rasha Khatib, Scott A Lear, Prem Mony, Manmeet Kaur, Viswanathan Mohan, Krishnapillai Vijayakumar, Rajeev Gupta, Annamarie Kruger, Lungiswa Tsolekile, Noushin MohammadiFard, Omar Rahman, Annika Rosengren, Alvaro Avezum, Andrés Orlandini, Noorhassim Ismail, Patricio Lopez-Jaramillo, Afzalhussein Yusufali, Kubilay Karsidad, Romaina Jqbal, Jephat Chifamba, Solange Martinez Oakley, Farnaza Ariffi n, Katarzyna Zatonska, Paul Poirier, Li Wei, Bo Jian, Chen Hui, Liu Xu, Bai Xiulin, Koon Teo, Andrew Mente

Summary

Background
Several international guidelines recommend the consumption of two servings of fruits and three servings of vegetables per day, but their intake is thought to be low worldwide. We aimed to determine the extent to which such low intake is related to availability and affordability.

Methods
We assessed fruit and vegetable consumption using data from country-specific, validated semi-quantitative food frequency questionnaires in the Prospective Urban Rural Epidemiology (PURE) study, which enrolled participants from communities in 18 countries between Jan 1, 2003, and Dec 31, 2013. We documented household income data from participants in these communities; we also recorded the diversity and non-sale prices of fruits and vegetables from grocery stores and market places between Jan 1, 2009, and Dec 31, 2013. We determined the cost of fruits and vegetables relative to income per household member. Linear random effects models, adjusting for the clustering of households within communities, were used to assess mean fruit and vegetable intake by their relative cost.

Findings
Of 143 305 participants who reported plausible energy intake in the food frequency questionnaire, mean fruit and vegetable intake was 3.76 servings (95% CI 3.66–3.86) per day. Mean daily consumption was 2.14 servings (1.93–2.36) in low-income countries (LICs), 3.17 servings (2.99–3.35) in lower-middle-income countries (LMICs), 4.31 servings (4.09–4.53) in upper-middle-income countries (UMICs), and 5.42 servings (5.13–5.71) in high income countries (HICs). In 130 402 participants who had household income data available, the cost of two servings of fruits and three servings of vegetables per day per individual accounted for 51.97% (95% CI 46.06–57.88) of household income in LICs, 18.10% (14.53–21.68) in LMICs, 15.87% (11.51–20.23) in UMICs, and 1.85% (–3.90 to 7.59) in HICs (ptrend=0.0001). In all regions, a higher percentage of income to meet the guidelines was required in rural areas than in urban areas (p<0.0001 for each pairwise comparison). Fruit and vegetable consumption among individuals decreased as the relative cost increased (ptrend=0.0004). Interprettion
The consumption of fruit and vegetables is low worldwide, particularly in LICs, and this is associated with low affordability. Policies worldwide should enhance the availability and affordability of fruits and vegetables.

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A cross-sectional study of socioeconomic status and cardiovascular disease risk among participants in the Prospective Urban Rural Epidemiological (PURE) Study

B A Egbujie, E U Igumbor, T Puoane

Background.
Cardiovascular diseases (CVDs) are a challenge to populations and health systems worldwide. It is projected that by 2020 about a third of all deaths globally will be caused by CVDs, and that they will become the single leading cause of death by 2030. Empirical evidence suggests that there is socioeconomic patterning in the distribution and prevalence of risk factors for CVD, but the exact nature of this relationship in South Africa remains unclear.

Objective.
To examine the association between socioeconomic status (SES) and risk factors for CVD in a cohort of adult South Africans living in rural and urban communities.

Method.
This was a cross-sectional analytical study of baseline data on a population-based cohort of 1976 SA men and women aged 35 - 70 years who were part of the Cape Town arm of the Prospective Urban and Rural Epidemiology (PURE) Study.

Results.
We found a complex association between SES and CVD risk factors, its pattern differing between urban and rural participants. Marital status showed the most consistent association with CVD risk in both groups: widowed participants living in urban communities were more likely to be hypertensive as well as diabetic, while single participants in both locations were more likely to use alcohol and tobacco products. Level of education was the only SES variable that had no significant association with any CVD risk factor in either study group. All measured SES variables were significantly different between urban and rural participants (p<0.05), with diabetes, obesity and alcohol use significantly more prevalent in urban than in rural participants (p<0.05) while hypertension and tobacco use were not (p≥0.05).

Conclusions.
In this cohort of South Africans, there were significant associations between SES and CVD risk, with marked differences in these associations between rural and urban locations. These findings highlight the need to consider SES and area of residence when designing interventions for CVD prevention and control.

Diet-related non-communicable diseases in South Africa: determinants and policy responses

Mark Spires Peter Delobelle, David Sanders, Thandi Puoane, Philipp Hoelzel, Rina Swart

Non-communicable diseases (NCDs) are the leading cause of death globally and they are on the rise both in low- and middle-income countries, with South Africa being no exception. Implicated in this upward trend in the country is an observed change in diet – a transition from traditional foods, to what has come to be known as the ‘western’ diet, i.e. more energy-dense, processed foods, more foods of animal origin, and more added sugar, salt and fat. Increasingly, international research links rapidly changing food environment with escalating chronic disease, i.e. it implicates population-level dietary change over individual factors such as knowledge, attitudes and behaviours. Environmental
and/or policy interventions can be some of the most effective strategies for creating healthier food environments. This chapter explores the link between the rise in diet-related NCDs, their proximal determinants (specifically an observed change in diet patterns), contributing environmental factors, what is currently being done or recommended to address this internationally, and the most relevant national-level policies for South Africa.

The authors conclude that to improve dietary patterns and reduce chronic diseases in South Africa will require a sustained public health effort that addresses environmental factors and the conditions in which people live and make choices. Overall, positive policies have been made at national level; however, many initiatives have suffered from a lack of concerted action. Key actions will be to reduce the intake of unhealthy foods and make healthy foods more available, affordable and acceptable in South Africa.

Introduction

Chronic non-communicable diseases (NCDs), mainly heart disease, stroke, cancer, diabetes and chronic respiratory disease, account for more than two-thirds of global deaths, at least half of which are caused by common, modifiable risk factors such as unhealthy diet, obesity, tobacco use and lack of physical activity. Currently, NCDs are the leading causes of death worldwide, resulting in 16 million premature deaths each year; and this is projected to worsen: in 1999, NCDs were estimated to have contributed to just under 60% of worldwide deaths and around 43% of the global burden of disease. Based on current trends forecast by the World Health Organization (WHO), these diseases are predicted to account for 73% of deaths and 60% of the disease burden by the year 2020. Global projections indicate that the biggest increase in NCD deaths will occur in low- and middle-income countries (LMICs); currently already 80% of global NCD deaths occur in these regions.

The United Nations (UN) recently recognised NCDs as an increasing threat and a major contributor to preventable disease and premature mortality. This has been a monumental step in placing NCDs on the global health and development agenda. A UN High-Level Meeting of Heads of State and Governments on the Prevention and Control of Non-communicable Diseases was held in September, 2011. This meeting classified NCDs not just as a health concern but as a major development issue. Participants adopted a political declaration to increase global focus and attention to prevent and control NCDs, especially in LMICs. South Africa was a participant and signatory to this meeting and supported the final political declaration. NCDs impose a large and continuously growing burden on the health, economy and development of South Africa, and currently accounts for a staggering 43% of recorded deaths. Rates of overweight and obesity (together the second-leading metabolic risk factor in NCD-attributable death in South Africa6), have risen sharply over recent years,7–10 in conjunction with ongoing high levels of underweight and nutritional deficiencies. In the year 2000, an estimated 7% of all nationally recorded deaths were attributed to excess body weight, while in 2004, NCDs linked to dietary intake, together with respiratory diseases, contributed 12% to the overall disease burden. Currently, more than 45% of men and women above the age of 35 are either overweight or obese. While NCDs have historically affected the more affluent and mainly White population, these conditions are now affecting other population groups as well. It is believed that in the coming decades, NCDs will further exacerbate wide inequalities in longevity and quality of life in South Africa.

Additionally, the chronic nature of NCDs demands long-term care and imposes a significant burden on an overstretched health system already having to cope with the HIV and AIDS epidemic, a high burden of tuberculosis (TB), maternal and child mortality, and high levels of violence and injuries.

This chapter explores the link between the rise in diet-related NCDs, their proximal determinants (specifically an observed change in diet patterns), contributing environmental factors, what is currently being done or recommended to address this internationally, and the most relevant national-level policies for South Africa.


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